WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/FI2005/050033

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language, _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. II Priority

1. ☒ The following document has not yet been furnished:

   ☒ copy of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(a)).

   ☐ translation of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(b)).

   Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	3-24	YES
	Claims	1-2, 25-29	NO
Inventive step (IS)	Claims		YES
	Claims	1-29	NO
Industrial applicability (IA)	Claims	1-29	YES
	Claims		NO

2. Citations and explanations:

The invention relates to control retransmissions aiming in repairing missing data in a multicast and broadcast transmission system.
The problem to be solved by the invention concerns feedback implosion, i.e. congestion in the network when all receivers in the network simultaneously request retransmission of missing data from a sender.
The object of the invention is to provide sender driven or receiver driven repair of missing data concerning data missing at the receiver. By sender driven or receiver driven it is meant sending parameters related to the link quality of the wireless transmission link, such as an error rate parameter, or maximum repair availability or other relevant parameters which cause retransmission of missing data.

Cited documents:
D1: EP 1146683 A2
D2: EP 1185033 A1
D3: GB 2287383 A
D4: 3GPP TS 23.246 v6.1.0 December 2003(2003-12): "Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description (Release 6).
D5: US 2003031175 A1

Document D1 describes a retransmission control method and a system for multicast service for avoiding congestion in the network. According to D1, parameters related to the link quality of the wireless link or other parameters are provided to a multicast sender (base station) by mobile stations concerning data missing at the receivers (the mobile stations). The sender then takes actions by comparing

.../...

Form PCT/ISA/237 (Box No. V) (January 2004)

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

received parameters with a threshold and selectively determines to which mobile stations retransmission is permitted, thus avoiding congestion in the network (see paragraphs [0048]-[0052], [0033]-[0042], [0071]-[0072], [0076]-[0077], claims 1-2). A receiver, a sender, a system and software for realising the method described in D1 are incorporated in D1.

Document D2 also deals with a method for data repair in a system capable of multicast transmissions. According to D2 mobile stations provide a retransmission request based on the quality of the link to a base station transmitting multicast data. The base station then judges whether retransmission is necessary based on a comparison with a quality threshold (see abstract, claims 1-2, claims 5-6, claims 22-23 in D2). A receiver, a sender, a system and software for realising the method described in D2 are incorporated in D2.

Document D3 describes a method and system for handling retransmissions in a system capable of broadcast transmissions. According to D3, receivers of the data provide to the sender information on whether, the received data is acceptable by checking the quality of the received data (see claims 1-4, abstract, figure 1).

Accordingly, in view of what is already known from D1 or D2, the invention according to independent claims 1, 25-29 is considered to lack novelty.

In D1, retransmission of missing data in total, only part of or as a whole is also described (see [0036]-[0040] in D1). Accordingly, the invention according to claim 2 is considered to lack novelty.

Documents D3-D5 represent the general state of the art, and the invention is not disclosed by these document.

The remaining claims are considered to involve particular detail executions obvious to a person skilled in the art. Therefore, the invention according to these claims is not considered to involve an inventive step.

Form PCT/ISA/237 (Supplemental Box) (January 2004)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawing or on the question whether the claim are fully supported by the description, are made:

The independent claims do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The following functional statement does not enable the skilled person to determine which technical features are necessary to perform the stated functions: providing sender driven or receiver driven repair of missing data, concerning data missing in the receiver.

Purthermore, The terms sender driven and receiver driven used in the independent claims are vague and unclear and leaves the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT).

It is clear from the description on pages 11-23 that the following features are essential to the definition of the invention:
(1) Error rate parameter (2) the threshold in a time or data window (3) a maximum repair availability.
Since independents claims 1, 25, 26, 27, 28-29 do not contain any of these features they do not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

Documents reflecting the prior art described on page 7, are not identified in the description (Rule 5.1(a)(ii) PCT).